

REMARKS

By the foregoing, the application has been amended to correct certain typographical errors and to generally place the claims in better condition for examination and for allowance. In addition, claims 12 and 29 have been amended to recite that M is a metal selected from Groups VA, VIA and VIIA of the periodic table of the elements, as supported by the specification at least at page 14, lines 12-15.

Applicants submit that a number of the claim amendments are not to be interpreted as narrowing the scope of the claims. For example, deletion of the terms "structural" and "mid-transition" and substitution of the term "substituent" for "radical" does not narrow the scope of the claims. As well, the correction of typographical errors in claims 12, 16, 17 and 21 is not to be interpreted as limiting the scope of the claims.

New claims 52 and 53 are added to provide coverage for the electron-withdrawing group substituents that were deleted from claims 12 and 29 for Q¹ and Q². New claim 54 is directed to compounds according to claim 1 in which one of L¹ and L² contains a second coordinating atom that is either a second nitrogen atom, optionally present in a second C=N group, or an oxygen, sulfur or phosphorus atom, and the other of L¹ and L² contains a second coordinating atom that is either a second nitrogen atom, optionally present in a second C=N group, or a sulfur or phosphorus atom. Support for these new claims is present in the originally filed claims and in the specification.

Restriction Requirement

At the outset, applicants affirm their election of the claims of Group I, i.e. claims 1-29, as set forth in the telephonic Restriction Requirement of April 22, 2003. By the foregoing amendments, claims 1-29 and new claims 52-54 are directed to the subject matter of the elected invention.

For the purposes of clarification, it should be noted that claims 1-29 and 52-54 are generally directed to compounds. By comparison, the subject matter of non-elected claims 30-40, as recited in these claims, concerns a "catalyst system" comprising a compound according to Group I and a catalyst activator. The Restriction groupings set forth in the Office Action dated September 29, 2003 are therefore actually based upon "compounds" for Group I and "catalyst systems" for Group II.

Applicants respectfully traverse the Restriction Requirement for at least the following reasons.

In the Office Action, the catalyst system of the Group II claims has been characterized as being a "final product" of the "intermediate product" compounds of the Group I claims. Applicants respectfully submit that the characterization of the claims as being related in an intermediate/final product relationship is incorrect and that the two Groups of claims are instead related as a

subcombination/combination. For the reasons explained below, the claims are not properly restricted based on either intermediate/final product or subcombination/combination.

As noted in the Office Action and in MPEP §806.04(b), for two groups of claims to be related as intermediate and final products, the groups must be related as "mutually exclusive species." The final product must therefore exclude the intermediate product. However, in the present case, the catalyst system specifically includes the compounds of any one of claims 1, 5, 7, 12, 17 or 22. The compounds and the catalyst system are therefore not "mutually exclusive species" and cannot properly be considered to be related as intermediate and final products.

In addition, nothing on the record supports the statement that the "intermediate product is deemed to be useful as a luminescent material" as noted in the Office Action. While this statement has been relied upon to imply that a catalyst system may not be an obvious variant of the claimed compounds, i.e., that the claimed compounds and catalyst system are "distinct," the lack of support for the use of the claimed compounds as luminescent materials means that the "distinctness" requirement has not been "shown." (Note that although the examiner is not required to provide "documentation" of the alternative use (MPEP §806.04(b)), "distinctness" must be shown, that is, "distinctness is proven if it can be shown that the intermediate product is useful other than to make the final product.")

However, the only information of record relating to luminescent materials (Kim et al., U.S. Patent No. 6,534,201) does not "show" that compounds according to applicants' claims may be useful to make luminescent materials. Specifically, Kim et al. mentions three coordinating metals M^1 , M^2 and M^4 for the compounds of formulae (I) to (V) (see columns 1-3), none of which suggests applicants' compounds at least for the reason that none of these metals is described as being coordinated to applicants' claimed ligands (e.g. according to both L^1 and L^2 of claim 1). In addition, of these coordinating metals for M^1 , M^2 and M^4 , only manganese is commonly mentioned from a list of metals for M^2 , and as a transition metal according to the metal M in applicants' claims. Given these (and other differences) between Kim et al.'s and applicants' compounds, it is not reasonable to conclude from this information that applicants' compounds could be used for the proposed alternative use as luminescent materials.

Without at least some reasonable basis to support (i.e., "show") the proposed alternative use, it should also not be necessary for applicants to "submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case" as is urged in the Office Action.

Applicants further note that restriction of the basis of intermediate-final product relationship usually means that the intermediate loses its identity in the final product (see, e.g., MPEP §806.04(b)).

In the present case, however, the combination of a catalyst activator with the claimed compounds to form a final product "catalyst system" does not mean that the claimed compounds lose their identity in the combination.

Applicants respectively submit that the compounds of claims 1-29 and 52-54 are actually a subcombination of claims 30-40, and that the latter group of claims is clearly a combination of the compounds of "any one of claims 1, 5, 7, 12, 17 or 22" and a catalyst activator. Without the "subcombination," claims 30-40 would merely recite a catalyst activator, which is not, by itself, patentable. As such, patentability of applicants' claims should be seen to reside with the claimed compounds, not simply the combination of a catalyst activator with the compounds. Stated another way, the catalyst system of claims 30-40 (i.e., the "combination") requires the particulars of the "subcombination" (i.e., the compounds of claims 1-29 and 52-54) such that two-way distinctness does not exist.

More specifically, in MPEP §806.05(c)(II), it is stated that

If there is no evidence that combination AB_{sp} is patentable without the details of B_{sp}, restriction should not be required. When the relationship between the claims is such that the separately claimed subcombination B_{sp} constitutes the essential distinguishing feature of the combination AB_{sp} as claimed, the inventions are not distinct and a requirement for restriction must not be made, even though the subcombination has separate utility.

In the present case, the claimed subcombination, B_{sp} (e.g., according to claims 1 and 12), is recited in the same specific terms in the combination claim (i.e. claim 30), rather than in broad terms (i.e., B_{br} using the notation of this section of the MPEP). In accordance with MPEP §806.05(c)(I), there is therefore no basis to presume that "the patentability of the combination does not rely on the details of the specific subcombination." Accordingly, restriction on the basis of subcombination/combination is also not proper for this reason.

Applicants further note that the MPEP rules concerning an intermediate/final product claims relationship are not applicable to a subcombination/combination at least for the reason that the MPEP rules separately address the subcombination/combination relationship as being distinct from the intermediate/final product relationship. See, e.g., MPEP 806.04(b) for intermediate/final product and §806.05(a)-(c) for subcombination/combination. As such, the rules applicable for an intermediate/final product relationship (e.g., one-way distinctness requirement) are not applicable to a subcombination/combination claims relationship.

In addition, applicants note that claims 1-40 and 52-54 may be readily examined together without undue burden on the Examiner, and pursuant to the provisions of MPEP §806.05, should be examined together.

For at least the foregoing reasons, applicants submit that restriction on the basis of an intermediate/final product relationship, or a subcombination/combination relationship, is not proper and respectfully request withdrawal of the Restriction Requirement and examination of all of the pending claims together in the present application.

Allowable Subject Matter

Applicants acknowledge with appreciation the Examiner's indication that claims 22-24 and 29 would be allowable according to the reasons and provisions noted in paragraph 10 at page 5 in the Office Action. For reasons explained below, however, applicants respectfully submit that the present claims are allowable as originally filed or as amended above.

Rejections under 35 U.S.C. §112, second paragraph

Claims 1-29 stand rejected under 35 U.S.C. §112, second paragraph, as being allegedly indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Applicants respectfully traverse these rejections for at least the following reasons.

At the outset, applicants note that the terms and language of the claims is to be read in light of the specification and with the understanding that an applicant may be his or her own lexicographer. Applicants respectfully submit that when the claims are read in this context, many of the concerns mentioned in the Office Action would not create any uncertainty in the scope or meaning of the claims for one of ordinary skill in the art.

For example, with regard to the term "mid-transition metal," applicants have explained in the specification (e.g., at page 14, lines 12-15) that this term refers to Group VA, VIA and VIIA transition metals. Of course, the "mid-" prefix results from the fact that these Groups represent a part of the transition elements, i.e., a middle part of Groups IIIA to IB (currently Groups 3-11 according to present IUPAC nomenclature) of the periodic table. Although this term has been removed from the claims, the term itself does not create any uncertainty since applicants have clearly described what is meant.

Claim 1 has also been amended to delete the terms "structural" and "radical," as suggested in the Office Action. The term "substituent" (rather than "group") has been added to replace the term "radical" in reference to the univalent species for Q¹ and Q² since this term provides a correct

description of these species (note, e.g., that "group" does not apply to species such as halides for Q^1 and Q^2). In addition, as noted above, these amendments are not to be interpreted as limiting the scope of the claims.

As for the term "alkylidene olefin," applicants have defined this to mean a " $=CR_2$ group wherein R is hydrogen or hydrocarbyl, typically lower alkyl" (see, e.g., page 16, line 6) such that the skilled artisan would understand the meaning of this term. The term "lower alkylene" has also been defined in the specification to mean an alkylene group of 1 to 6 carbon atoms (see page 11, lines 13-14).

The use of Group identifiers from the periodic table based upon a particular version of the Handbook of Chemistry and Physics and the IUPAC nomenclature system (see the notation at page 15, lines 16-18 of the specification) also does not create any uncertainty in the meaning of the claims since it is clear what Groups and elements are meant. In addition, although the currently accepted IUPAC system designates Groups 1-18, rather than Groups IA to VIIIA, and IB to VIIB, there is nothing unclear about using the system referred to in the application. Clearly, the skilled artisan would understand which elements are referred to regardless of which IUPAC (or other) nomenclature is used.

The phrases "may be," "may together" and "may or may not," as they appear in claims 12 and 29, also do not create any uncertainty since this language simply means that the features referred to are possible, but not required. The use of "may" for the features referred to therefore does not create any confusion when read in the context of the claim and in light of the specification. Substitution of "is" or "are" for "may" or "may be" should not be necessary since the features referred to would still be possibilities, not requirements of the claims.

The claims have also been amended to obviate the remaining concerns mentioned for claims 12, 16, 17, 21 and 29 (i.e., the use of "such as," antecedent basis for "anions," and the subscript "ma" for ligand L^2).

For at least the foregoing reasons, the claims are clear within the meaning of §112, second paragraph. Withdrawal of the second paragraph rejections is requested.

Rejections under 35 U.S.C. §102

Claims 1-21 and 25-28 stand rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Maeda et al. (U.S. Patent No. 4,954,420). Applicants respectfully traverse this rejection for at least the following reasons.

Maeda et al. (hereinafter "Maeda") relates to a metal-containing indoaniline compound according to formula (I) and an optical recording medium employing the compound (see, e.g., the

Abstract). The indoaniline compound is described as being a dye that is present in the recording layer of an optical recording medium (see, e.g., column 2, lines 41-50).

In the Office Action, the Abstract and column 4, line 44 of Maeda have been cited as allegedly disclosing the subject matter of claims 1-21 and 25-28. Applicants respectfully disagree that this information, or any other disclosure provided by Maeda, anticipates or suggests applicants' claims.

For example, applicants' claims relate to compounds in which a metal M is linked to two univalent substituents Q^1 and Q^2 and coordinated to ligands L^1 and L^2 (claim 1) or L^A and L^B (claim 12). However, Maeda does not at all mention that the metal atom referred to therein is linked to substituents according to applicants' claimed Q^1 and Q^2 moieties. Actually, none of Maeda's complexes contain substituents equivalent or even analogous to applicants' univalent Q^1 and Q^2 moieties. As such, Maeda cannot be interpreted as anticipating, or rendering *prima facie* obvious, applicants' claims.

Maeda also fails to disclose or suggest other features of the claims that depend from claim 1. In particular, each of the features recited in, e.g., claims 2, 3, 5 and 6 is not mentioned by Maeda such that these claims are also separately patentable over Maeda.

Moreover, claim 12 and claims dependent therefrom are not properly rejected over Maeda for additional reasons. For example, although Maeda discloses that the coordinating atoms of the indoaniline compound may be both a nitrogen and an oxygen atom, the oxygen coordinating atom is linked to the ring structure via a double bond rather than a single bond as required by claim 12. That is, claim 12 recites, in part, under the definition for X "(b) when X is O . . . then . . . q is absent." As such, the claimed compounds do not include coordinating ligands according to formula (I) of Maeda (or formula (II), as shown at column 4) in which the oxygen atom is coordinated with the metal atom and also double bonded to a ring structure. Claims 12-21 and 25-28 are therefore also novel over Maeda for this reason.

For at least the foregoing reasons, the claims are patentable over Maeda. Withdrawal of the §102 rejection based upon Maeda is requested.

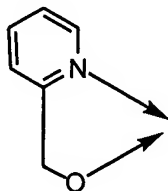
Claims 1-7 and 12-17 stand rejected under 35 U.S.C. §102(e) as being allegedly anticipated by Reichle et al. (U.S. Patent No. 5,852,146). Applicants respectfully traverse this rejection for at least the following reasons.

Reichle et al. (hereinafter "Reichle") relates to catalyst precursors in which compounds are coordinated to a metal M selected from the group consisting of Group IIIB to VIII and Lanthanide series elements through coordinating N and O atoms according to formulae (I) and (II) (see, e.g., columns 1-2).

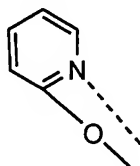
By comparison, the coordination metals recited in applicants' claims are not specifically disclosed by Reichle. For example, in claim 1, a specific Markush group of metals is recited wherein the metal is selected from the group consisting of Nb, Ta, Mo, W, Mn and Re. Reichle does not specifically mention any of these metals, nor the corresponding Groups VA, VIA and VIIA of the periodic table (currently corresponding to IUPAC Groups 5-7), as recited in claim 12. Actually, the only specific metals referred to are mentioned, e.g., at column 3, lines 23-24 as being "preferably titanium, zirconium, or hafnium, most preferably zirconium," which are all Group 4 metals (formerly Group IVA) of the periodic table. The present claims are therefore not anticipated since Reichle fails to specifically disclose applicants' claimed metals or Groups of metals.

In addition, Reichle's broad disclosure of a metal selected from Group IIIB to VIII and Lanthanide series elements and preference for a specific group of metals (titanium, zirconium, or hafnium, most preferably zirconium) should be interpreted as teaching away from the metals utilized in the compounds claimed by applicants.

With regard to claim 12 and claims dependent therefrom, it should be noted that formula (I) of Reichle fails to anticipate these claims since the oxygen coordinating atom is directly bonded to the pyridyl group, whereas at least an intermediate carbon atom or group is present in the formula of claim 12. In other words, in claim 12, if R^1 and R^2 are linked to form a 6-membered ring, X is oxygen (such that q is absent) and m is zero, then ligand L^1 may correspond to:

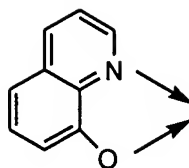


By comparison, Reichle's formula (I) compound, as noted, contains oxygen atoms bonded to the pyridyl groups without the intermediate carbon atom or group, i.e.



Claims 12-17 are therefore not anticipated by formula (I) of Reichle for at least this reason.

The compounds according to formula (II) of Reichle also fail to anticipate claims 12-17 since the corresponding structure of claim 12 would require that R^1 , R^2 and R^5 be linked to form a bicyclic group as follows:



However, claim 12 does not recite that each of these three R^1 , R^2 and R^5 groups are linked to form such a bicyclic group. As such, the compounds of formula (II) of Reichle also fail to anticipate claims 12-17.

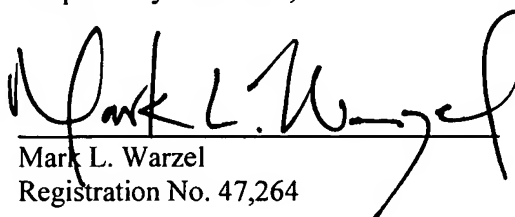
For at least the foregoing reasons, the claims are patentable over Reichle. Withdrawal of the §102 rejection based upon Reichle is requested.

New claims 52-54 are also allowable over each of Maeda and Reichle for the reasons discussed above. In addition, neither of these references discloses or suggests the features of the compounds of claim 54, namely compounds according to claim 1 wherein "one of L^1 and L^2 contains a second coordinating atom that is either a second nitrogen atom, optionally present in a second $C=N$ group, or an oxygen, sulfur or phosphorus atom, and the other of L^1 and L^2 contains a second coordinating atom that is either a second nitrogen atom, optionally present in a second $C=N$ group, or a sulfur or phosphorus atom." Claims 54 is therefore also allowable for this reason.

Should the Examiner have any questions concerning this amendment or the accompanying remarks, a telephone call to the undersigned would be appreciated.

Respectfully submitted,

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